1990 Index IEEE Transactions on Semiconductor Manufacturing Vol. 3

This index covers all items - papers, correspondence, reviews, etc. that appeared in this periodical during 1990, and items from previous years hat were commented upon or corrected in 1990.

The Author Index contains the primary entry for each item, listed under the first author's name, and cross-references from all coauthors. The Subject Index contains several entries for each item under appropriate subject headings, and subject cross-references.

It is always necessary to refer to the primary entry in the Author Index for

the exact title, coauthors, and comments/corrections.

AUTHOR INDEX

Ada-Hanifi, Mohamed, see Lévy, Didier, T-SEM Nov 90 168-175 Ahmed, Mansoor, Charles E. Cole, Ramesh C. Jain, and A. Ravishankar Rao. INSPAD: A system for automatic bond pad inspection (Corresp.); T-SEM Aug 90 145-147

Allen, Bruce D., see Feldbaumer, David W., T-SEM Nov 90 206-215

Berman, Claude L., see Pukite, Paul R., T-SEM Aug 90 128-135
Borden, Peter. The nature of particle generation in vacuum process tools;
T-SEM Nov 90 189-194

Brun, Nicole, see Lévy, Didier, T-SEM Nov 90 168-175
Budge, T., S. Craven, S. Duran, J. T. Pearson, R. Welch, and M. Wossum.
PARSEC-Process analysis with recipe support for etcher control; T-SEM Feb 90 28-32

Busch-Vishniac, Ilene J. Applications of magnetic levitation-based micro-automation in semiconductor manufacturing; T-SEM Aug 90 109-115

Chang, Mei, see Riley, Paul E., T-SEM Aug 90 142-144 Clark, Thomas E., see Riley, Paul E., T-SEM Nov 90 150-157 Cole, Charles E., see Ahmed, Mansoor, T-SEM Aug 90 145-147 Comeau, Alain. How to extract defect densities from distribution (Corresp.); T-SEM May 90 84-88

Craven, S., see Budge, T., T-SEM Feb 90 28-32 Cunningham, James A. The use and evaluation of yield models in integrated circuit manufacturing; T-SEM May 90 60-71

Delpech, Philippe, see Lévy, Didier, T-SEM Nov 90 168-175 D'Ouville, Thierry Ternisien, see Lévy, Didier, T-SEM Nov 90 168-175 Duran, S., see Budge, T., T-SEM Feb 90 28-32 Dyatlovitsky, Eugene, see Harvey, Jerry, T-SEM Aug 90 136-141

Feldbaumer, David W., Charles J. Varker, Mark Griswold, and Bruce D. Allen. Design and application of the interlayer van der Pauw resistor alignment bridge; T-SEM Nov 90 206-215

Ferris-Prabhu, Albert V. A cluster-modified Poisson model for estimating

defect density and yield; T-SEM May 90 54-59

Funakoshi, Kiyohiko, and Kazushi Mizuno. A rule-based VLSI process flow validation system with macroscopic process simulation; T-SEM Nov 90 239-246

Galewski, Carl J., Jen-Chung Lou, and William G. Oldham. Silicon wafer preparation for low-temperature selective epitaxial growth; T-SEM Aug 90 93-98

Garver, Marion M., see Riley, Paul E., T-SEM Nov 90 150-157 Ghanayem, Steve G., see Riley, Paul E., T-SEM Aug 90 142-144 Gleason, Edward F., see Riley, Paul E., T-SEM Nov 90 150-157

Gonchond, Jean-Pierre, see Lévy, Didier, T-SEM Nov 90 168-175 Grambow, Kai G., see Lukaszek, Wes, T-SEM Feb 90 18-27 Griswold, Mark, see Feldbaumer, David W., T-SEM Nov 90 206-215 Gyurcsik, Ronald S., see Sorrell, F. Yates, T-SEM Nov 90 183-188

Hackerott, Michael, and Andy Urquhart. An hypothesis test technique for determining a difference in sampled parts defective utilizing Fisher's exact test (Corresp.); T-SEM Nov 90 247-248

Haond, Michel, see Lévy, Didier, T-SEM Nov 90 168-175

Harris, John A., see Sorrell, F. Yates, T-SEM Nov 90 183-188

Harvey, Jerry, and Eugene Dyatlovitsky. A relational database for semiconductor device parametric data; T-SEM Aug 90 136-141
 Hodges, D. A. Editor's notice; T-SEM Nov 90 149

Holwill, Robert J., see MacDonald, Angus J., T-SEM May 90 72-79 Huang, Weiling, see Parker, Donald L., T-SEM May 90 80-83

Jain, Ramesh C., see Ahmed, Mansoor, T-SEM Aug 90 145-147 Jeanne, Jean-Pierre, see Lévy, Didier, T-SEM Nov 90 168-175

Kawanabe, Ichiro, see Kikuyama, Hirohisa, T-SEM Aug 90 99-108 Kikuyama, Hirohisa, Nobuhiro Miki, Kiyonori Saka, Jun Takano, Ichiro Kawanabe, Masayuki Miyashita, and Tadahiro Ohmi. Surface active buffered hydrogen fluoride having excellent wettability for ULSI processing; T-SEM Aug 90 99-108

Krishnan, N. H., see Salkalachen, S., T-SEM Feb 90 12-17

Krishnan, S., see Salkalachen, S., T-SEM Feb 90 12-17

Lévy, Didier, Philippe Delpech, Maryse Paoli, Claude Masurel, Michel Vernet, Nicole Brun, Jean-Pierre Jeanne, Jean-Pierre Gonchond, Mohamed Ada-Hanifi, Michel Haond, Thierry Ternisien D'Ouville, and Hervé Mingam. Optimization of a self-aligned titanium silicide process for submicron technology; T-SEM Nov 90 168-175

Lin, Kuang-Kuo, and Costas J. Spanos. Statistical equipment modeling for VLSI manufacturing: An application for LPCVD; T-SEM Nov 90

Lou, Jen-Chung, see Galewski, Carl J., T-SEM Aug 90 93-98 Lukaszek, Wes, Kai G. Grambow, and Willie J. Yarbrough. Test chip based approach to automated diagnosis of CMOS yield problems; T-SEM Feb 90 18-27

Lukaszek, Wes, see Michalka, Timothy L., T-SEM Nov 90 158-167

MacDonald, Angus J., Anthony J. Walton, J. M. Robertson, and Robert J. Holwill. Integrating CAM and process simulation to enhance on-line analysis and control of IC fabrication; TSEM May 90 72-79

Maeno, M., see Miki, N., TSEM Feb 90 1-11

Mak, Alfred, see Riley, Paul E., TSEM Aug 90 142-144

Maruhashi, K., see Miki, N., TSEM Feb 90 1-11

Masurel, Claude, see Lévy, Didier, T-SEM Nov 90 168-175

McDonald Karen A. see Young Gregory I. TSEM Nov 90 176-182

McDonald, Karen A., see Young, Gregory L., T-SEM Nov 90 176-182 Meindl, James D., see Michalka, Timothy L., T-SEM Aug 90 116-127 Meindl, James D., see Michalka, Timothy L., T-SEM Nov 90 158-167

Michalka, Timothy L., Ramesh C. Varshney, and James D. Meindl. A discussion of yield modeling with defect clustering, circuit repair, and

circuit redundancy; T-SEM Aug 90 116-127

Michalka, Timothy L., Wieslaw Lukaszek, and James D. Meindl. A redundant metal-polyimide thin film interconnection process for wafer scale dimensions; T-SEM Nov 90 158-167

Miki, N., M. Maeno, K. Maruhashi, Y. Nakagawa, and T. Ohmi. Fluorine passivation of metal surface for self-cleaning semiconductor equipment; T-SEM Feb 90 1-11

Miki, Nobuhiro, see Kikuyama, Hirohisa, T-SEM Aug 90 99-108

Mingam, Hervé, see Lévy, Didier, T-SEM Nov 90 168-175 Miyashita, Masayuki, see Kikuyama, Hirohisa, T-SEM Aug 90 99-108

Mizuno, Kazushi, see Funakoshi, Kiyohiko, T-SEM Nov 90 239-246

Najafi, Nader, and Kensall D. Wise. An organization and interface for sensor-driven semiconductor process control systems; T-SEM Nov 90

Nakagawa, Y., see Miki, N., T-SEM Feb 90 1-11

Ohmi, Tadahiro, see Miki, N., T-SEM Feb 90 1-11 Ohmi, Tadahiro, see Kikuyama, Hirohisa, T-SEM Aug 90 99-108 Oldham, William G., see Galewski, Carl J., T-SEM Aug 90 93-98

Paoli, Maryse, see Lévy, Didier, T-SEM Nov 90 168-175
Parker, Donald L., and Weiling Huang. Polysilicon resistor trimming by laser link making (Corresp.); T-SEM May 90 80-83
Pearson, J. T., see Budge, T., T-SEM Feb 90 28-32
Pukite, Paul R., and Claude L. Berman. Defect cluster analysis for wafer-scale integration; T-SEM Aug 90 128-135

Rao, A. Ravishankar, see Ahmed, Mansoor, T-SEM Aug 90 145-147 Riley, Paul E., Mei Chang, Steve G. Ghanayem, and Alfred Mak. Development of a magnetron-enhanced plasma process for tungsten etchback with response-surface methodology (Corresp.); T-SEM Aug 90 142-144

Riley, Paul E., Thomas E. Clark, Edward F. Gleason, and Marion M. Garver. Implementation of tungsten metallization in multilevel interconnection technologies; *T-SEM Nov 90* 150-157

Robertson, J. M., see MacDonald, Angus J., T-SEM May 90 72-79

Saka, Kiyonori, see Kikuyama, Hirohisa, T-SEM Aug 90 99-108 Salkalachen, S., N. H. Krishnan, S. Krishnan, H. B. Satyamurthy, and K. S. Srinivas. Edge passivation and related electrical stability in silicon power devices; *T-SEM Feb 90* 12-17

Satyamurthy, H. B., see Salkalachen, S., TSEM Feb 90 12-17
Savir, Jacob. AC product defect level and yield loss; T-SEM Nov 90 195-205
Shacham-Diamand, Yosi. Modeling of Novolak-based positive photoresist
exposed to KrF excimer laser UV radiation at 248 nm; T-SEM May 90 37-44

Sorrell, F. Yates, John A. Harris, and Ronald S. Gyurcsik. A global model for rapid thermal processors; *T-SEM Nov 90* 183-188 Spanos, Costas J., see Lin, Kuang-Kuo, *T-SEM Nov 90* 216-229 Srinivas, K. S., see Salkalachen, S., *T-SEM Feb 90* 12-17

Takano, Jun, see Kikuyama, Hirohisa, T-SEM Aug 90 99-108

U

Urquhart, Andy, see Hackerott, Michael, T-SEM Nov 90 247-248

Varker, Charles J., see Feldbaumer, David W., T-SEM Nov 90 206-215 Varshney, Ramesh C., see Michalka, Timothy L., T-SEM Aug 90 116-127 Vernet, Michel, see Lévy, Didier, T-SEM Nov 90 168-175

Walton, Anthony J., see MacDonald, Angus J., T-SEM May 90 72-79 Welch, R., see Budge, T., T-SEM Feb 90 28-32 Wise, Kensall D., see Najafi, Nader, T-SEM Nov 90 230-238 Wossum, M., see Budge, T., T-SEM Feb 90 28-32

Yang, Ying-Kuei. EPAS: An emitter piloting advisory expert system for IC emitter deposition; T-SEM May 90 45-53 Yarbrough, Willie J., see Lukaszek, Wes, T-SEM Feb 90 18-27

Young, Gregory L., and Karen A. McDonald. Effect of radiation shield angle on temperature and stress profiles during rapid thermal annealing T-SEM Nov 90 176-182

SUBJECT INDEX

AC measurements; cf. Electric variables measurement Advisory systems; cf. Expert systems Annealing; cf. Thermal factors

B

Bibliographies

implementing tungsten metallization in multilevel interconnection technologies. Riley, Paul E., +, T-SEM Nov 90 150-157

Bipolar integrated circuits

EPAS, emitter piloting advisory expert system for IC emitter deposition Yang, Ying-Kuei, T-SEM May 90 45-53

Bonding; cf. Integrated-circuit bonding

Bridge circuits

interlayer van der Pauw resistor alignment bridge; design and applications Feldbaumer, David W., +, T-SEM Nov 90 206-215

CAM (computer-aided manufacturing); cf. Manufacturing automation Circuit optimization; cf. Yield optimization

Circuit reliability; cf. Integrated-circuit reliability

Circuits; cf. Bridge circuits; Integrated circuits; Logic circuits; Resistive circuits

Cleanliness

fluorine passivation of metal surface for self-cleaning ULSI process. Mike N., +, T-SEM Feb 90 1-11

surface-active buffered hydrogen fluoride having excellent wettability for ULSI processing. Kikuyama, Hirohisa, +, T-SEM Aug 90 99-108

CMOS integrated circuits

optimizing self-aligned titanium silicide proces technology. Lévy, Didier, +, T-SEM Nov 90 168-175

test-chip-based approach to automated diagnosis of CMOS yield problems. Lukaszek, Wes, +, T-SEM Feb 90 18-27

Coatings; cf. Sputtering

Communication systems; cf. Data communication

Component reliability; cf. Integrated-circuit reliability; Semiconductor device reliability

Computer-aided engineering; cf. Manufacturing automation Computer communication; cf. Data communication Computer vision; cf. Inspection, visual

Contacts; cf. Integrated-circuit metallization

Control systems; cf. Manufacturing automation; Process control

D

Data communication

organization and interface for sensor-driven semiconductor process control systems. Najafi, Nader, +, T-SEM Nov 90 230-238

Database systems, relational

relational database for semiconductor device parametric test data Harvey, Jerry, +, T-SEM Aug 90 136-141

Decision-making

hypothesis testing technique for determining difference in sampled defective parts using Fisher's exact test. Hackerott, Michael, +, T-SEN. Nov 90 247-248

Decision-support systems
integrating CAM and process simulation to enhance online analysis and control of IC fabrication. MacDonald, Angus J., +, T-SEM May 90 72-7

Defects; cf. Yield optimization Diagnosis; cf. Fault diagnosis

Diffusion processes

EPAS, emitter piloting advisory expert system for IC emitter deposition Yang Ying-Kuei, T-SEM May 90 45-53

Distribution functions; cf. Generalized functions

Electric variables measurement

AC product defect level and yield loss for logic and RAM chips. Savia Jacob, T-SEM Nov 90 195-205

Electrochemical processes; cf. Specific topic or device

Emitter piloting; cf. Diffusion processes

Epitaxial growth

silicon wafer oxide removal in preparation for low-temperature selective epitaxial growth. Galewski, Carl J., +, T-SEM Aug 90 93-98

cluster-modified Poisson model for estimating defect density and yield. Ferris-Prabhu, Albert V., T-SEM May 90 54-59

Etching; cf. Sputtering

Excimer lasers

modeling Novolak-based positive photoresist exposed to KrF excimer laser UV radiation at 248 nm. Shacham-Diamand, Yosi, T-SEM May 90 37-44

Expert systems

EPAS, emitter piloting advisory expert system for IC emitter deposition. Yang, Ying-Kuei, T-SEM May 90 45-53

test-chip-based approach to automated diagnosis of CMOS yield problems. Lukaszek, Wes, +, T-SEM Feb 90 18-27

Fabrication; cf. Manufacturing automation; Semiconductor device fabrication

Factory automation; cf. Manufacturing automation

Fatigue; cf. Mechanical factors

Fault diagnosis

test-chip-based approach to automated diagnosis of CMOS yield problems. Lukaszek, Wes, +, T-SEM Feb 90 18-27

Fault tolerance; cf. Redundant systems

FET integrated circuits; cf. CMOS integrated circuits Flow control

rule-based VLSI process flow validation system with macroscopic process simulation. Funakoshi, Kiyohiko, +, T-SEM Nov 90 239-246

Fluorine materials/devices

fluorine passivation of metal surface for self-cleaning ULSI process. $Miki, N, +, T-SEM\ Feb\ 90\ 1-11$

surface-active buffered hydrogen fluoride having excellent wettability for ULSI processing. Kikuyama, Hirohisa, +, T-SEM Aug 90 99-108

Gallium materials/devices

effect of thermal radiation shield angle on temperature and stress profiles during rapid thermal annealing of GaAs wafers. Young, Gregory L., +, T-SEM Nov 90 176-182

Gas lasers; cf. Excimer lasers

Generalized functions

calculating defect densities from single data set and expressing in units of defects per geometric factor per independent variable. Comeau, Alain, T-SEM May 90 84-88

Heating; cf. Process heating; Thermal factors

development and refinement of net-die-per-wafer yield models over last 25 years. Cunningham, James A., T-SEM May 90 60-71

Hybrid integrated-circuit interconnections; cf. Thin-film circuit interconnections

Hydrogen materials/devices; cf. Fluorine materials/devices

Hypothesis testing; cf. Decision-making

I

Image analysis

INSPAD, system for automatic bond pad inspection. Ahmed, Mansoor, + , T-SEM Aug 90 145-147

Industrial control; cf. Manufacturing automation; Process control Inspection, visual

INSPAD, system for automatic bond pad inspection. Ahmed, Mansoor, +, T-SEM Aug 90 145-147

Integrated-circuit bonding

INSPAD, system for automatic bond pad inspection. Ahmed, Mansoor, +, T-SÉM Aug 90 145-147

Integrated-circuit design; cf. Yield optimization; Specific topic or device Integrated-circuit fabrication; cf. Epitaxial growth; Integrated-circuit bonding; Integrated-circuit metallization; Laser applications,

processing; Manufacturing automation; applications, materials processing; Resists; Sputtering; Specific topic or device

Integrated-circuit interconnections

implementing tungsten metallization in multilevel interconnection technologies. Riley, Paul E., +, T-SEM Nov 90 150-157

redundant metal-polyimide thin-film interconnection process for wafer-scale dimensions. Michalka, Timothy L., +, T-SEM Nov 90 158-167

Integrated-circuit measurements; cf. Integrated-circuit testing Integrated-circuit mechanical factors

effect of thermal radiation shield angle on temperature and stress profiles during rapid thermal annealing of GaAs wafers. Young, Gregory L., +, T-SEM Nov 90 176-182

Integrated-circuit metallization

implementing tungsten metallization in multilevel interconnection technologies. Riley, Paul E., +, T-SEM Nov 90 150-157

INSPAD, system for automatic bond pad inspection. Ahmed, Mansoor, + , T-SÉM Aug 90 145-147

magnetron-enhanced plasma process for tungsten etchback with response-surface methodology. Riley, Paul E., +, T-SEM Aug 90 142-144 Integrated-circuit metallization; cf. Integrated-circuit interconnections

Integrated-circuit reliability

yield modeling with defect clustering, circuit repair, and circuit redundancy. Michalka, Timothy L., +, T-SEM Aug 90 116-127

Integrated-circuit reliability; cf. Yield optimization

Integrated-circuit testing

interlayer van der Pauw resistor alignment bridge; design and application. Feldbaumer, David W., +, T-SEM Nov 90 206-215

relational database for semiconductor device parametric test data. Harvey, Jerry, +, T-SEM Aug 90 136-141

Integrated-circuit thermal factors

effect of thermal radiation shield angle on temperature and stress profiles during rapid thermal annealing of GaAs wafers. Young, Gregory L., +, T-SEM Nov 90 176-182

global model for rapid thermal processors. Sorrell, F. Yates, +, T-SEM Nov 90 183-188

Integrated circuits; cf. Bipolar integrated circuits; CMOS integrated circuits; MMICs; Very-large-scale integration; Wafer-scale integration

Interconnected systems; cf. Multilevel systems

Interconnections, integrated cf. Integrated-circuit interconnections

Interfaces; cf. Data communication

T.

Large-scale-integration; cf. Very-large-scale integration; Specific topic or device

Laser applications, materials processing

modeling Novolak-based positive photoresist exposed to KrF excimer laser UV radiation at 248 nm. Shacham-Diamand, Yosi, T-SEM May 90 37-44

polysilicon resistor trimming by laser link making. Parker, Donald L., +, T-SEM May 90 80-83

Lasers; cf. Ultraviolet lasers

Levitation; cf. Magnetic levitation

Logic circuits

AC product defect level and yield loss for logic and RAM chips. Savir, Jacob, T-SEM Nov 90 195-205

Logic circuits; cf. Bipolar integrated circuits; CMOS integrated circuits

Machine vision; cf. Image analysis

Magnetic levitation

magnetic-levitation-based microautomation in semiconductor manufacturing. Busch-Vishniac, Ilene J., T-SEM Aug 90 109-115

Magnetrons; cf. Sputtering Maintenance; cf. Fault diagnosis

Manufacturing automation

integrating CAM and process simulation to enhance online analysis and control of IC fabrication. MacDonald, Angus J., +, T-SEM May 90 72-79 magnetic-levitation-based microautomation in semiconductor manufacturing. Busch-Vishniac, Ilene J., T-SEM Aug 90 109-115 PARSEC automated process analysis system with recipe support for

etcher control. Budge, T., +, T-SEM Feb 90 28-32

Manufacturing automation; cf. Process control

Materials processing; cf. Laser applications, materials processing; Process control; Process heating

Measurement; cf. Electric variables measurement; Transducers

Mechanical factors

effect of thermal radiation shield angle on temperature and stress profiles during rapid thermal annealing of GaAs wafers. Young, Gregory L., +, T-SEM Nov 90 176-182

Memories; cf. Random-access memories

Metallization; cf. Integrated-circuit metallization; Thin-film circuit interconnections

Modeling; cf. Specific topic or device

MOS integrated circuits; cf. CMOS integrated circuits

Multilevel systems

implementing tungsten metallization in multilevel interconnection technologies. Riley, Paul E., +, T-SEM Nov 90 150-157

Noble-gas lasers; cf. Excimer lasers

Optical imaging/mapping; cf. Inspection, visual Oxidation; cf. Epitaxial growth

Particle production

nature of particle generation in vacuum process tools. Borden, Peter, T-SEM Nov 90 189-194

Pattern recognition; cf. Inspection, visual

Photoresists: cf. Resists

Plasma applications, materials processing
PARSEC automated process analysis system with recipe support for etcher control. Budge, T., +, T-SEM Feb 90 28-32

Plasma-arc devices; cf. Laser applications, materials processing

Plasmas; cf. Sputtering

Poisson processes cluster-modified Poisson model for estimating defect density and yield. Ferris-Prabhu, Albert V., T-SEM May 90 54-59

redundant metal-polyimide thin-film interconnection process for wafer-scale dimensions. Michalka, Timothy L., +, T-SEM Nov 90 158-167

Power semiconductor devices; cf. Thyristors

Process control

organization and interface for sensor-driven semiconductor process control systems. Najafi, Nader, +, T-SEM Nov 90 230-238 rule-based VLSI process flow validation system with macroscopic process

simulation. Funakoshi, Kiyohiko, +, T-SEM Nov 90 239-246 statistical equipment modeling for VLSI manufacturing; application for

LPCVD. Lin, Kuang-Kuo, +, T-SEM Nov 90 216-229

Process control; cf. Manufacturing automation; Process heating

Process heating global model for rapid thermal processors. Sorrell, F. Yates, + , T-SEM Nov 90 183-188

Process monitoring; cf. Manufacturing automation

Production systems; cf. Process control

R

Random-access memories

AC product defect level and yield loss for logic and RAM chips. Savir, Jacob, T-SEM Nov 90 195-205

Redundant systems

defect cluster analysis for wafer-scale integration; redundant-circuit yield

prediction. Pukite, Paul R., +, T-SEM Aug 90 128-135
yield modeling with defect clustering, circuit repair, and circuit
redundancy. Michalka, Timothy L., +, T-SEM Aug 90 116-127
Reliability; cf. Integrated-circuit reliability; Redundant systems;
Semiconductor device reliability; Yield optimization

Repair; cf. Integrated-circuit reliability

Resistive circuits

interlayer van der Pauw resistor alignment bridge; design and application. Feldbaumer, David W., +, T-SEM Nov 90 206-215

Resistors; cf. Thin-film resistors

modeling Novolak-based positive photoresist exposed to KrF excimer laser UV radiation at 248 nm. Shacham-Diamand, Yosi, T-SEM May 90 Sampling methods

hypothesis testing technique for determining difference in sample defective parts using Fisher's exact test. Hackerott, Michael, +, T-SEM Nov 90 247-248

Scene analysis; cf. Image analysis

Semiconductor device...; cf. Integrated-circuit...

Semiconductor device fabrication

edge passivation and related electrical stability in silicon power devices Salkalachen, S., +, T-SEM Feb 90 12-17
Semiconductor device fabrication; cf. Epitaxial growth; Laser applications

materials processing; Manufacturing automation; Process control Resists

Semiconductor device reliability

edge passivation and related electrical stability in silicon power devices Salkalachen, S., +, T-SEM Feb 90 12-17

Semiconductor device reliability; cf. Integrated-circuit reliability

Semiconductor device testing

relational database for semiconductor device parametric test data Harvey, Jerry, +, T-SEM Aug 90 136-141
Semiconductor device testing; cf. Integrated-circuit testing

Semiconductor growth; cf. Epitaxial growth

Sensors; cf. Transducers

Signal estimation; cf. Estimation

Silicon materials/devices; cf. Thyristors; Transducers

Simulation

integrating CAM and process simulation to enhance online analysis and control of IC fabrication. MacDonald, Angus J., +, T-SEM May 90 72-7 Simulation; cf. Specific topic or device

magnetron-enhanced plasma process for tungsten etchback with response-surface methodology. Riley, Paul E., +, T-SEM Aug 90 142-14 Stability

edge passivation and related electrical stability in silicon power devices Salkalachen, S., +, T-SEM Feb 90 12-17

statistical equipment modeling for VLSI manufacturing; application for LPCVD. Lin, Kuang-Kuo, +, T-SEM Nov 90 216-229

yield modeling with defect clustering, circuit repair, and circuit redundancy. Michalka, Timothy L., +, T-SEM Aug 90 116-127

Stress analysis; cf. Mechanical factors

Surfaces

fluorine passivation of metal surface for self-cleaning ULSI process. Mika N., +, T-SEM Feb 90 1-11

surface-active buffered hydrogen fluoride having excellent wettability fo ULSI processing. Kikuyama, Hirohisa, +, T-SEM Aug 90 99-108

Temperature control; cf. Process heating

Testing; cf. Fault diagnosis; Integrated-circuit testing; Semiconductor device testing

Thermal factors

effect of thermal radiation shield angle on temperature and stress profile during rapid thermal annealing of GaAs wafers. Young, Gregory L., + T-SEM Nov 90 176-182

Thermal factors; cf. Integrated-circuit thermal factors Thermal variables control; cf. Process heating; Thermal factors

Thin-film circuit interconnections

redundant metal-polyimide thin-film interconnection process fo wafer-scale dimensions. Michalka, Timothy L., +, T-SEM Nov 96 158-167

Thin-film resistors

polysilicon resistor trimming by laser link making. Parker, Donald L., + T-SEM May 90 80-83

Thin films; cf. Integrated-circuit interconnections; Integrated-circui metallization

edge passivation and related electrical stability in silicon power devices Salkalachen, S., +, T-SEM Feb 90 12-17 Titanium materials/devices

optimizing self-aligned titanium silicide process for submicroi technology. Lévy, Didier, +, T-SEM Nov 90 168-175

Tolerance analysis/assignment; cf. Yield optimization **Transducers**

organization and interface for sensor-driven semiconductor proces control systems. Najafi, Nader, +, T-SEM Nov 90 230-238

Tungsten materials/devices

implementing tungsten metallization in multilevel interconnection technologies. Riley, Paul E., +, T-SEM Nov 90 150-157

magnetron-enhanced plasma process for tungsten etchback with response-surface methodology. Riley, Paul E., +, T-SEM Aug 90 142-14

U

Itra-large-scale integration

fluorine passivation of metal surface for self-cleaning ULSI process. Miki, N., +, T-SEM Feb 90 1-11

surface-active buffered hydrogen fluoride having excellent wettability for ULSI processing. Kikuyama, Hirohisa, +, T-SEM Aug 90 99-108

ltraviolet lasers

modeling Novolak-based positive photoresist exposed to KrF excimer laser UV radiation at 248 nm. Shacham-Diamand, Yosi, T-SEM May 90 37-44

V

acuum systems

nature of particle generation in vacuum process tools. Borden, Peter, T-SEM Nov 90 189-194

ery-large-scale integration
rule-based VLSI process flow validation system with macroscopic process simulation. Funakoshi, Kiyohiko, +, T-SEM Nov 90 239-246
statistical equipment modeling for VLSI manufacturing; application for LPCVD. Lin, Kuang-Kuo, +, T-SEM Nov 90 216-229
'ery-large-scale integration; cf. Wafer-scale integration; Specific topic or devices

device

isual system (non-biological); cf. Inspection, visual

W

Vafer-scale integration

defect cluster analysis for wafer-scale integration; redundant-circuit yield prediction. Pukite, Paul R., +, T-SEM Aug 90 128-135

redundant metal-polyimide thin-film interconnection wafer-scale dimensions. Michalka, Timothy L., +, T-SEM Nov 90 158-167

Wiring; cf. Integrated-circuit interconnections

Y

Yield optimization

AC product defect level and yield loss for logic and RAM chips. Savir, Jacob, T-SEM Nov 90 195-205

calculating defect densities from single data set and expressing in units of defects per geometric factor per independent variable. Comeau, Alain, T-SEM May 90 84-88

cluster-modified Poisson model for estimating defect density and yield. Ferris-Prabhu, Albert V., T-SEM May 90 54-59

defect cluster analysis for wafer-scale integration; redundant-circuit yield prediction. Pukite, Paul R., +, T-SEM Aug 90 128-135

development and refinement of net-die-per-wafer yield models over last 25 years. Cunningham, James A., T-SEM May 90 60-71

edge passivation and related electrical stability in silicon power devices. Salkalachen, S., +, T-SEM Feb 90 12-17

hypothesis testing technique for determining difference in sampled defective parts using Fisher's exact test. Hackerott, Michael, +, T-SEM Nov 90 247-248

test-chip-based approach to automated diagnosis of CMOS yield problems. Lukaszek, Wes, +, T-SEM Feb 90 18-27

yield model applicable when some chip defect repairs are possible. Michalka, Timothy L., +, T-SEM Aug 90 116-127

For those SciTech information specialists who need data in electrotechnology—

Look to the source...IEEE



The Institute of Electrical and Electronics Engineers, Inc., with its 37 Technical Societies and Councils, publishes over 20% of the world's principal literature in the electrical, electronics, computer science, and engineering fields.

As the leading source, the IEEE publishes 77 periodicals, over 12O conference publications (for 199O), reference and state-of-the-art books from the IEEE PRESS, and over 6OO Standards of the industry (over 425 of which have been approved by the American National Standards Institute).

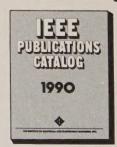
SPECTRUM, the world's most widely read scientific and engineering magazine, with a readership of 507,000, is also published by the IEEE.

Over 15,000 libraries throughout the world subscribe to one or more IEEE periodicals.

In addition, IEEE Educational Activities produces Individual Learning Packages (ILPs) for professional engineers who require current knowledge in emerging high technology apart from formal classroom settings.



Send for the Free IEEE Catalog



If your library serves engineers or scientists, you should become familiar with the source. To receive your FREE Catalog, just write:

IEEE-Marketing Dept. 445 Hoes Lane, P.O. Box 1331 Piscataway, NJ 08855-1331 1-800-678-IEEE (4333)

INFORMATION FOR AUTHORS

Content

IEEE TRANSACTIONS ON SEMICONDUCTOR MANUFACTURING is published quarterly with the first issue in February. Contributed papers may be of a tutorial or research nature, but the latter must be original and must not duplicate descriptions or derivations available elsewhere.

This TRANSACTIONS aims to address the challenging problems of manufacturing complex microelectronic components, especially very large scale integrated circuits (VLSI), but also thin-film heads for magnetic recording, integrated optical components, and other similar products. Manufacturing these products typically requires precision micropatterning, precision control of materials properties, ultra-clean work environments, and complex interactions of chemical, physical, electrical, and mechanical processes. An integrated application of interdisciplinary skills is essential for success.

Particularly sought for these TRANSACTIONS are original papers describing practical engineering techniques for solving problems involving interactions among facility, equipment, process, product, and people issues in the context of manufacturing. The TRANSACTIONS' spectrum of coverage will range from fundamental to applied. Whenever possible papers should include appropriate results from manufacturing experience.

Submission of a manuscript manifests the fact that it has been neither copyrighted, published, nor submitted or accepted for publication elsewhere, unless otherwise so stated by the author.

Length

Authors should document their work in relation to the open literature. The following limits on length will be enforced.

- 1) Regular papers, 7 to 20 double-spaced pages in length, plus up to 10 pages, 81/2" by 11" of figures.
- 2) Correspondence items of less than 6 double-spaced pages, plus not more than 3 pages of figures.

Style for Manuscripts

- 1) The manuscript should be printed using double space; use one side of the sheet only. Office-duplicated copies are acceptable.
- 2) Provide a carefully worded abstract of from 100 to 200 words for papers and less than 50 words for correspondence. Name, address, and telephone number of author(s) should appear with abstract.
- 3) A phamphlet, "Information for IEEE Transactions and Journal Authors," is available on request from the IEEE Publications Department, 345 East 47 Street, New York, NY 10017.
- 4) References may appear as numbered footnotes or in a separate bibliography at the end of the paper. In either case, references should be complete and in IEEE style.

Style for papers: Author (with initials first), title, journal title, volume number, inclusive page numbers, month, year.

Style for books: Author, title, location publisher, year, page or chapter number (if desired). See this issue for further examples.

- 5) Figure captions should be on a separate sheet in proper style for typesetting. See this issue for examples.
- 6) Departures from the above style may delay publication.

Style for Illustrations

- 1) Originals of drawings and glossy print photographs should be sharp and of good contrast. Line drawings should be in high contrast black ink on a white background. Use $8\frac{1}{2}$ " \times 11" size sheets to simplify handling of the manuscript. Template lettering is recommended; typing on figures is not acceptable. Lettering must be large enough to permit legible reduction of the figure to column width, perhaps as much as 4:1.
- 2) Identify each illustration on the back or at the bottom of the front with the figure number and name of author(s). Captions lettered on figures will be blocked out in reproduction in favor of typeset captions.

Review Process

The review process usually requires about two months. The author is then notified of the decision of the Editor or Associate Editor based on reviewer recommendations. The authors may be asked to modify the manuscript if it is not accepted or rejected in its original form. The elapsed time between final acceptance of a manuscript and publication is usually four to eight months.

Submissions

Send the original and three copies of your manuscript to the Editor. Each copy should be complete with illustrations and should be accompanied by a separate sheet containing the address to which galley proofs and other correspondence can be sent. Also enclose original illustrations or be prepared to submit these immediately upon acceptance of your manuscript. Authors will be charged for changes in text or figures in proof. In the case of regular papers, also be prepared to provide a brief technical biography and photograph of each author.

Voluntary Page Charges: After a manuscript has been accepted for publication, the author's company or institution will be requested to pay a voluntary charge of \$110.00 per printed page to cover part of the cost of publication. Page charges for this IEEE TRANSACTIONS, like those for journals of other professional societies, are not obligatory nor is their payment a prerequisite for publication. The author will receive 100 free reprints without covers if the charge is honored. Detailed instructions will accompany the galley proof.

Copyright: It is the policy of the IEEE to own the copyright to the technical contributions it publishes on behalf of the interests of the IEEE, its authors, and their employers, and to facilitate the appropriate reuse of this material by others. To comply with the U.S. Copyright Law, authors are required to sign an IEEE copyright transfer form before publication. This form, a copy of which appears in the February 1990 issue of this TRANSACTIONS, returns to authors and their employers full rights to reuse their material for their own purposes. Authors must submit a signed copy of this form with their manuscripts.

N070003 ETN31 SM
HAWAII UNIV
SERIALS RECEIVING
2550 THE MALL
HONOLULU HI 96822